



Practice Masters Level A

5.1 Introduction to Quadratic Functions

Show that each function is a quadratic function by writing it in the form $f(x) = ax^2 + bx + c$ and identifying a , b , and c .

1. $f(x) = (x + 2)(x - 3)$ _____

2. $f(x) = x(x + 3) - 2$ _____

3. $f(x) = (-x - 2)(x - 3)$ _____

4. $f(x) = (x + 3)^2$ _____

5. $f(x) = (2x - 3)(3x + 1)$ _____

Identify whether each function is quadratic. Use a graph to check your answers.

6. $f(x) = 4x^2 + 2x - 1$ _____

7. $f(x) = x^3 + x + 2$ _____

8. $f(x) = \frac{3x^3 + 4x^2}{2x}$ _____

9. $f(x) = -4x + 2$ _____

10. $f(x) = \frac{1}{x^2}$ _____

11. $f(x) = 4x + x^2 - 2$ _____

State whether the parabola opens up or down and whether the y -coordinate of the vertex is the minimum value or maximum value of the function.

12. $f(x) = 3x^2 + x - 2$ _____

13. $f(x) = 10 - 2x - x^2$ _____

14. $f(x) = (x + 3)(2 - x)$ _____

15. $f(x) = (3 - x)(1 - x)$ _____

Graph each function and give the approximate coordinates of the vertex.

16. $m(x) = x^2 + 1$

17. $n(x) = -x^2 + x + 3$

18. $p(x) = 3x^2 + 5x - 2$

